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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 810,825	03 16 2001	Minyao Mao	OC0104US	6754

22849 7590 05 09 2003

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EXAMINER

TAMAI, KARL I

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 05 09 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/810,825	MAO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tamai IE Karl	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 6 is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8, 10-16 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 recites the limitation "the mechanical latch". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Elkuch (US 3,769,531). Elkuch teaches an electrostatic actuator with an electrode having a short and tall portion at the tip of the electrode, where the tall portions are adjacent each other. The movable element 20 with a short and tall portion moves from a first and second position relative to the base 8.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elkuch (US 3,769,531). Elkuch teaches every aspect of the invention except the height of the electrodes. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Foster with the tall electrodes height being at least 2x the small electrodes to optimize the performance of the actuator, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see *In re Aller*, 105 USPQ 233).

7. Claims 1-3, 10, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777). Suzuki teaches an electrostatic actuator with variable thickness electrodes (Fig. 3). Suzuki teaches the shape of the electrode determines the performance of the actuator (col. 11 lines 10-24). Suzuki does not teach thick portions on the distal end and thin portions near the base. Sugiyama teaches thick portions on the distal end and thin portions near the base to reduce capacitance variation rate. Sugiyama shows the

moving and stationary wide portions have adjacent overlapping regions (fig. 1c). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki with the thick/thin portions of Sugiyama to reduce the capacitance variation between the electrodes, and because Suzuki suggests that the shape/widths of the electrodes is a design parameter for determining the best actuator force (col. 11, line 10).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777). Suzuki and Sugiyama teaches every aspect of the invention except the range of the electrodes being less than 4 and greater than 6 microns. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki and Sugiyama with the electrodes being less than 4 and greater than 6 microns to optimize the performance of the actuator, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see *In re Aller*, 105 USPQ 233).

9. Claims 7, 8, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777), in further view of Lee et al. (Lee)(US 6,360,033). Suzuki and Sugiyama teaches every aspect of the invention except the latch springs and the pulsed operating voltage. Lee teaches an electrostatic actuator with latch springs to operate as a switch

with lower power consumption, by a low operating voltage. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki and Sugiyama with the latch springs of Lee to operate as a switch with low power consumption.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777), in further view of Adams et al. (US 5,914,553). Suzuki and Sugiyama teach every aspect of the invention except the center portion of the wide electrode bein removed. Adams teaches a hole in the middle of the electrode (figure 9) to form a box configuration with improved rigidity. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki and Sugiyama with a hole in the electrode, as in Adams, to increase rigidity.

#### ***Response to Arguments***

11. Applicant's arguments filed 2/12/03 have been fully considered but they are moot in view of the new ground of rejection. The Applicant's argument regarding Elkuch is not persuasive because the movable finger moves between a first and second position.

#### ***Allowable Subject Matter***

12. Claims 5 and 6 are allowed.

13. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nestor Ramirez, can be reached at (703) 308-1371. The facsimile number for the Group is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Karl I Tamai  
PRIMARY PATENT EXAMINER  
May 8, 2003



KARL TAMAI  
PRIMARY EXAMINER